

Amendment Under 37 C.F.R. § 1.116
U.S. Application No. 09/883,131

Attorney Docket No. Q71763

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1 – 41. (Cancelled).

42. (Previously presented) A padlock, including a shackle having a short leg with a first locking recess and a longer leg having an opposed second locking recess, said opposed second locking recess being connected by a longitudinally elongated recess to a peripheral recess disposed towards the end of the longer leg,

and a casing having a short and a longer recess extending into the casing from a first end surface to accept the short and longer shackle leg respectively, a central recess extending into the casing from an opposed second end surface, an offset recess extending into the casing from the opposed second end surface and intersecting the central recess, the intersection defining a first and a second longitudinally elongated cusp portions, said short, longer and central recesses being intersected by a transverse recess extending into the casing from a first side of the casing,

a cylinder having a key operable barrel characterized by an undisplaced position enabling key removal,

two opposed balls supported within the transverse recess; a first ball to protrude into the short recess and first locking recess and a second ball to protrude into the longer recess and second locking recess,

a cam including a first cam portion to control the balls and a cam drive portion that includes opposed drive recesses,

the cam operable by the barrel through an interspaced coupler that projects towards the cam to occupy holes within the cam drive recesses while being supported in barrel drive recesses to provide a Type 2 padlock,

the cam operable by the barrel through an interspaced coupler that projects towards the cam to occupy the two drive recesses without projecting into said holes within the cam drive recesses while being supported in barrel drive recesses to provide a Type 1 padlock,

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said Type 1 padlock being characterized by an open configuration where the short leg is free of the casing, the longer leg is supported in the casing and the key is removable,

said Type 2 padlock being characterized by an open configuration where the short leg is free of the body, the long leg is supported in the body casing and the key and barrel cannot be rotated to the undisplaced position to enable key removal.

43. (Previously presented) A padlock according to claim 42, wherein the first cam portion comprises a substantially cylindrical portion having a peripheral curved side surface defined in part by a longitudinal axis coaxial with an axis of rotation of the cam and which is parallel with and between longitudinal axes of the short and longer recess in the casing,

said cam in a locking configuration presenting the curved side surface to each ball to retain each ball in its corresponding locking recess,

said cam in the unlocking configuration presenting a first unlocking side recess to the first ball and a second unlocking side recess to the second ball to enable the first ball to be removed from the first locking recess and the second ball to be partly removed from the second locking recess and be retained partly within the longitudinally elongated recess or partly within the peripheral recess.

44. (Previously presented) A padlock according to Claim 42, wherein an angular disposition of the first cam portion in the locking and unlocking configurations is determined by a stop member being part of the cam, said stop member being an outwardly projecting finger of the a disc-like member supported coaxially with and relative to the first cam portion, said stop member protruding into the offset recess, said stop member being displaceable between a first operative configuration where the outwardly projecting finger abuts the wall of the offset recess adjacent the first cusp and a second operative configuration where the outwardly projecting finger abuts the opposite wall of the offset casing, the padlock being further characterized by:

a locked configuration corresponding to the stop member being in the first operative configuration, the short and longer legs being supported in the casing and restrained from displacing relative to the casing, the cam being in a locking configuration retaining the first ball

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partly within the first locking recess and the second ball being partly within the second locking recess,

the cam and stop member being rotateable in an unlocking direction by the cylinder to displace the padlock to an unlocked configuration, and

an open, unlocked configuration corresponding to the stop being in the second operative configuration, the short leg being free of the casing, the longer leg being supported in the casing, and the cam being in an unlocking configuration retaining the second ball partly within the longitudinally elongated recess or partly within the peripheral recess.

45. (Previously presented) A padlock according to Claim 42, configured as a Type 1 padlock, wherein the coupler comprises an opposed pair of drive pins supported by the barrel and wherein the coupler is displaceable about an axis of rotation of the barrel to displace the cam to the unlocking configuration and the barrel and key to subsequently be returned to the undisplaced position while each drive pin correspondingly displaces freely within a drive recess.

46. (Previously presented) A padlock according to Claim 42, configured as a Type 2 padlock, wherein the coupler comprises an opposed pair of drive pins supported by the barrel and wherein the coupler is displaceable about an axis of rotation of the barrel to displace the cam to the unlocking configuration whereupon the barrel and key become restrained from displacing to the undisplaced position by each drive pin being within a hole.

47. (Previously presented) A padlock according to Claim 42, wherein the coupler comprises an opposed pair of drive pins supported by the barrel,

said drive pins having passage through while being supported in a support disc to comprise a subassembly to comprise the coupler, the drive pins being configured to protrude more from one side of the support disc than the other and additionally being configured so that when assembled into the padlock casing with the longer ends towards the cam, they protrude into the holes in the cam whereby to provide a Type 2 padlock, and when assembled into the padlock casing with the shorter ends towards the cam, the drive pins protrude into the drive recesses but not into the holes in the cam whereby to provide a Type 1 padlock.

48. (Previously presented) A padlock according to Claim 43, wherein the first cam portion has a removable configuration enabling the removal of the shackle, the cam in the

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removal configuration presenting a third side recess, deeper than the second recess, to the second ball to enable the second ball to be removed from all the recesses of the longer leg, said removal configuration corresponding to the long leg being capable of being free of the casing.

49. (Previously presented) A padlock according to Claim 43, including a torsion spring supported within the cam, said torsion spring having one end attached to the cam and another end within the offset recess to bias the cam towards the locking configuration.

50. (Previously presented) A padlock according to claim 45, including a compression spring within the longer recess to bias the shackle from the body.

51. (Currently Amended) A padlock according to Claim 42, wherein the cylinder is displaceable relative to the casing to be removable and to provide accessibility to the cam and to enable the cam to be displaced to a removal configuration wherein the shackle is ~~removeable~~ removable.

52. (Previously presented) A padlock according to claim 42, wherein the drive recesses are defined in part by drive shoulders.

53. (Previously presented) A padlock according to claim 42, wherein the cylinder comprises an interchangeable core retained in the casing by a sideways protruding shoulder that is displaceable to withdraw into the core by the application of a control key.

54 - 55. (Cancelled).

56. (Previously presented) A padlock shackle according to claim 42, wherein the longitudinally elongated recess comprises a channel.

57. (Previously presented) A padlock shackle according to claim 42, wherein the peripheral recess comprises a peripheral channel around the periphery of the shackle body.

58. (Previously presented) A padlock shackle according to Claim 57, wherein a cross-section of the channel is defined by a radius substantially the same as the radii of the second ball.

59. (Previously presented) A padlock including a casing, comprising:
a cylinder having a key operable barrel characterized by an undisplaced position enabling key removal,

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two opposed balls supported within a transverse recess; a first ball to protrude into a short recess and a first locking recess and a second ball to protrude into a longer recess and a second locking recess,

a cam including a first cam portion to control the balls and a cam drive portion that includes opposed drive recesses,

the cam operable by the barrel and key through an interspaced coupler comprising pins that project into holes within the cam's opposed drive recesses while being supported in barrel drive recesses to provide a Type 2 padlock,

the cam operable by the barrel through an interspaced coupler with said pins that project into the two drive recesses without said pins projecting into said holes within the cam drive recesses while being supported in the barrel drive recesses to provide a Type 1 padlock,

said Type 1 padlock being characterized by an open configuration where a short leg of a shackle is free of the casing, a longer leg of the shackle is supported in the casing and the key is removable,

said Type 2 padlock being characterized by an open configuration where the short leg of the shackle is free of the body, the long leg of the shackle is supported in the body casing and the key and barrel cannot be rotated to the undisplaced position to enable key removal.

60. (Currently Amended) A padlock with a casing, comprising:

a barrel, said barrel being operable by a key;

a cam, said cam comprising drive recesses and drive holes; and

a coupler for coupling said barrel with said cam, said coupler comprising opposed pins;

wherein

said pins are invertible ~~invertable~~, and, when said pins are in a first position and the padlock is open, said pins engage said barrel with said cam by being inserted into said drive holes, wherein said key cannot be removed from said barrel; and when said pins are in a second position and the padlock is open, said pins engage said barrel by being inserted into said drive recesses, wherein said key can be removed from said barrel.